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PHOTOGRAPHIC INTERPRETATION REPORT

# TYURATAM MISSILE TEST CENTER
# LAUNCH COMPLEX D

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TOP SECRET

PHOTOGRAPHIC INTERPRETATION REPORT

# TYURATAM MISSILE TEST CENTER
# LAUNCH COMPLEX D

NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

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## SUMMARY/CONCLUSIONS

Launch Complex D is the prototype IIIA facility for the first generation of deployed Soviet hard ICBM launch sites. Launch Site D1, the first of the 2 sites constructed at the complex, is associated with the SS-7 missile system; Launch Site D2, the more recently constructed site, is probably associated with the development of the SS-9 missile system. An interferometer/range-rate device was added to the complex during the construction of Launch Site D2, and is associated with that site. This type of electronics facility, however, was never incorporated into the configuration of any of the deployed Type IIIA launch sites.

During late 1965, or early 1966, Launch Site D2 was subjected to a large high-explosives detonation in what appears to have been a vulnerability test. Visible damage to the launch site as a result of this test was confined to damage to several frame buildings.

## INTRODUCTION

Launch Complex D is located at the eastern edge of the Tyuratam Missile Test Center at 46-01N 64-00E, approximately 36 nm northeast of the main support base and 12 nm east of Launch Complex H (Figure 1). When first observed in [redacted] the complex was in an early stage of construction, and consisted mainly of a rectangular excavation and survey lines for a new road being extended eastward from Complex C. No evidence of this activity was apparent on [redacted] in [redacted]

Major elements of Launch Complex D include 2 Type IIIA launch sites, (D1 and D2), an interferometer/range-rate device, a probable observation point, an instrumentation site, and a complex support facility. An explosives storage area is located just south of the complex main road, 3.3 nm west-southwest of the complex support facility. The complex is served by a black top, all-weather road.

## LAUNCH SITE D1

Launch Site D1 (Figures 2 and 3) was the first of 2 prototype IIIA launch sites to be constructed. This first-generation Soviet hardened launch silo probably was begun at Tyuratam late in 1960, along with a nearly concurrent program of operational deployment at various ICBM complexes. Many of the construction techniques employed at these sites went undetected because of small-scale photography of poor interpretability. Early coverage of Site D1 provided only vague indications of the nature of the construction activity, but additional details may be surmised from larger scale coverage at the deployed complexes. As presently configured, the site consists of 3 hardened launch silos built in a common large rectangular excavation with a large notch in one of its longer sides. The silos are spaced 200 feet apart, on a line having an orientation of 315 degrees. West of the line of silos, and constructed in the notch in the side of the original excavation, is an earth-mounded control bunker. This control bunker has personnel entrances on 3 of its 4 sides and a number of unidentified structures (probably ventilators, observation ports, or, perhaps, antennas) on its roof. Each of the 3 silo headworks is approximately square, and canted about [redacted] from the line through the silos to a loading azimuth of [redacted] The large rectangular doors covering the silos are opened by

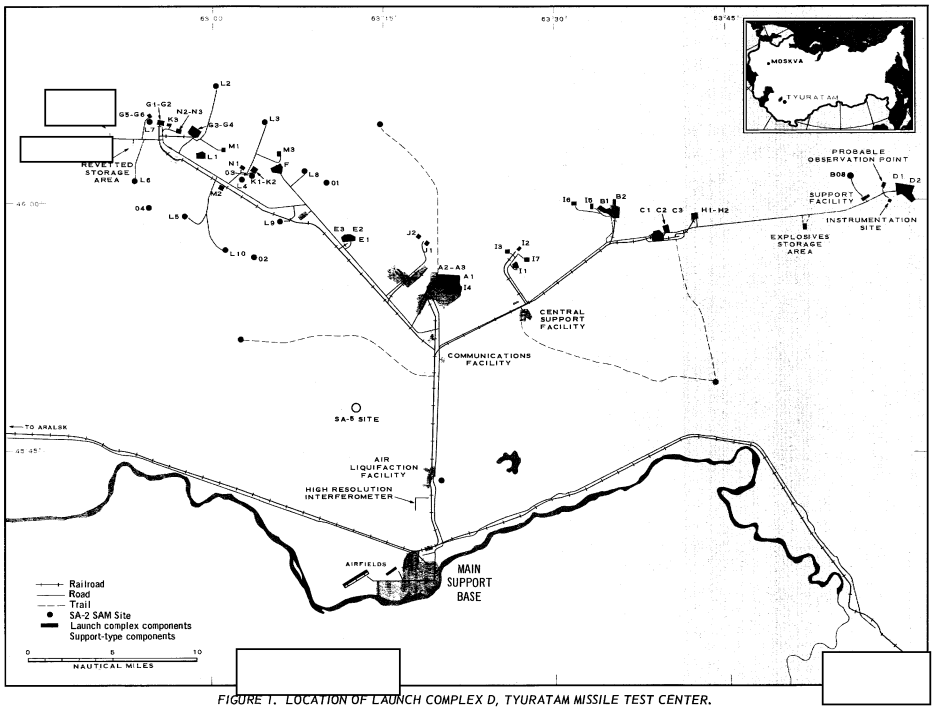



*FIGURE 1. LOCATION OF LAUNCH COMPLEX D, TYURATAM MISSILE TEST CENTER.*

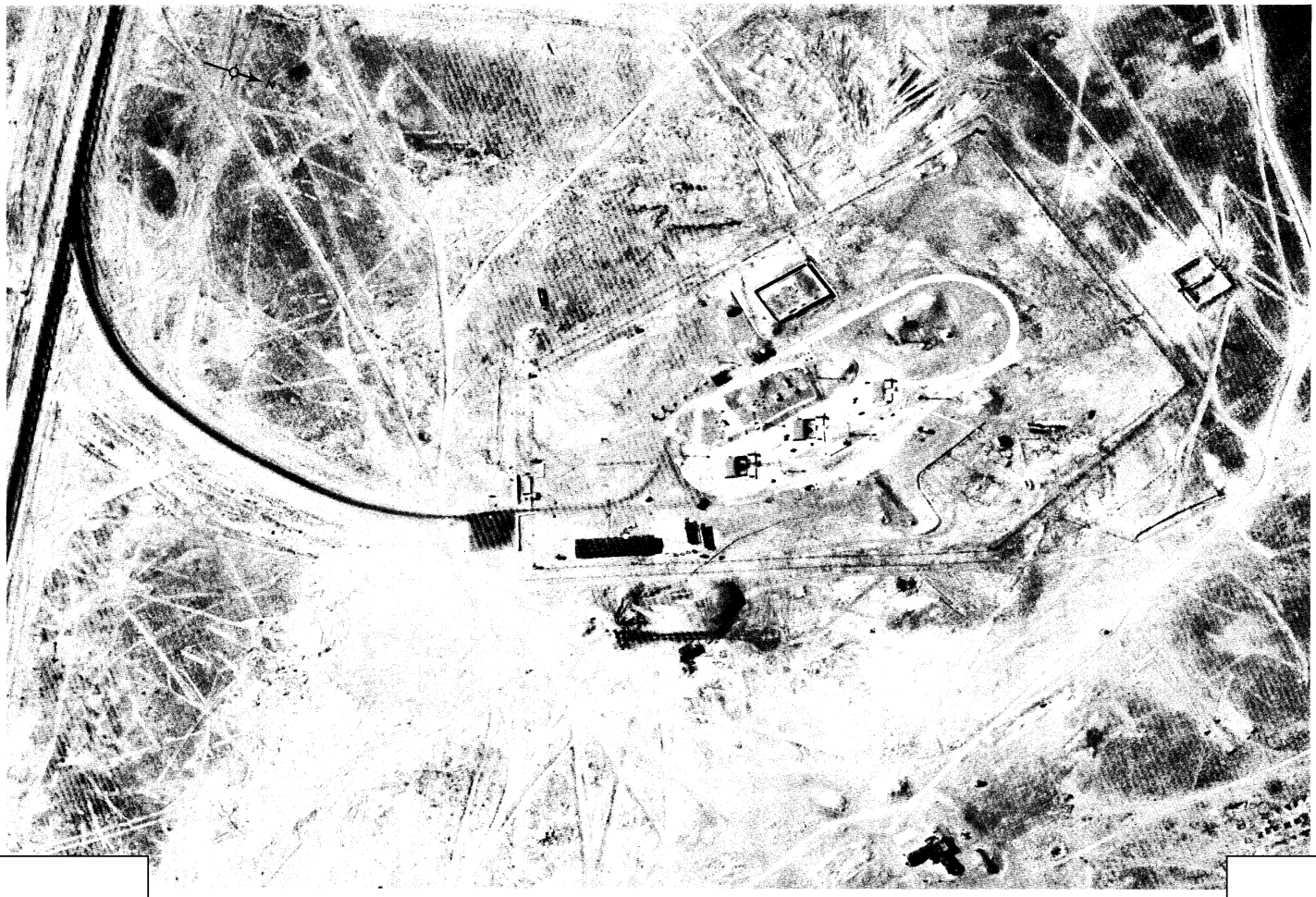
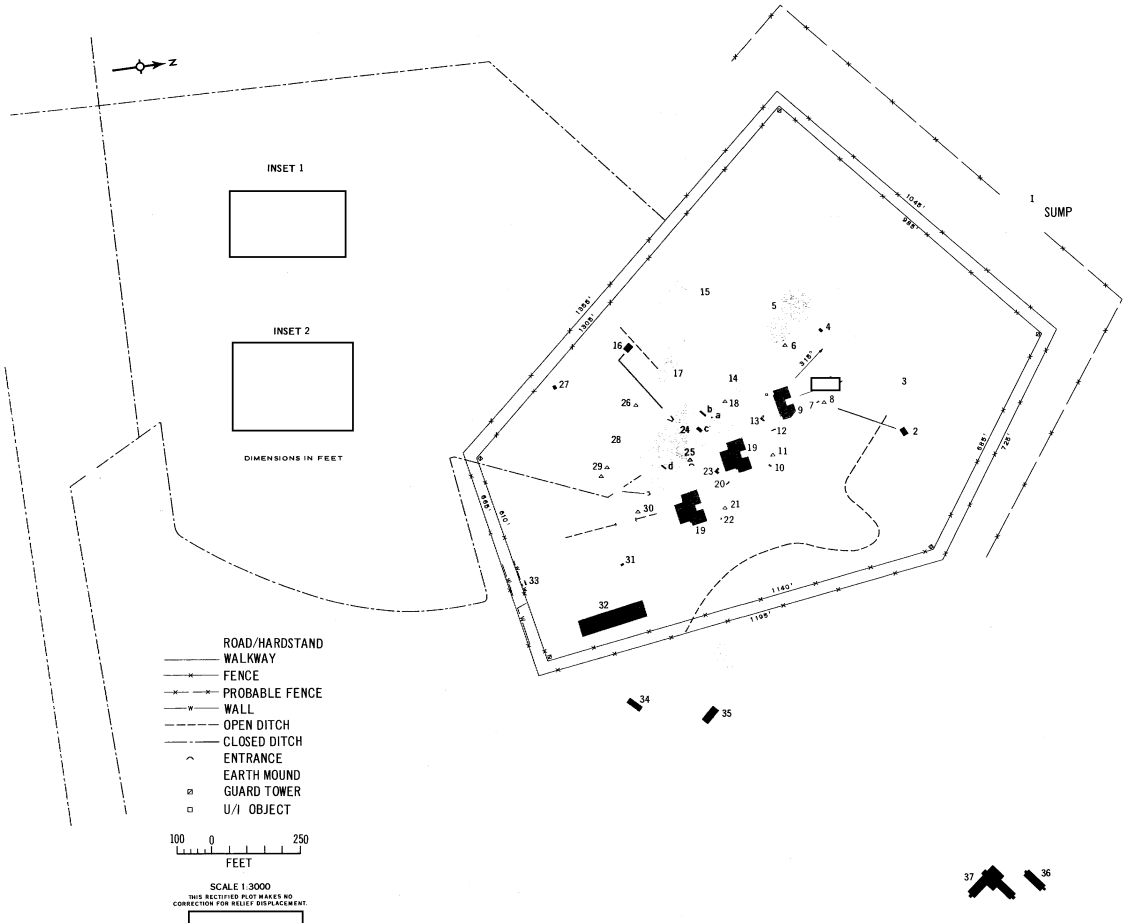


FIGURE 2. LAUNCH SITE 01, TYURATAM MISSILE TEST CENTER.




| ITEM | DESCRIPTION | DIMENSIONS (FT) |
|---|---|---|
| 1 | DUAL-BASIN SUMP | |
| 2 | BLDG | |
| 3 | EARTH-MOUNDED BLDG | |
| 4 | BLDG | |
| 5 | 2 EARTH-MOUNDED TANKS | |
| 6 | TOWER | |
| 7 | STRUCTURE | |
| 8 | TOWER | |
| 9 | LAUNCH SILO | |
| 10 | STRUCTURE | |
| 11 | TOWER | |
| 12 | STRUCTURE | |
| 13 | STRUCTURE | |
| 14 | EARTH-MOUNDED STRUCTURE | |
| 15 | POSS SPRAY POND | |
| 16 | BLDG | |
| 17 | 2 EARTH-MOUNDED PROB TANKS | |
| 18 | TOWER | |
| 19 | 2 LAUNCH SILOS | |
| 20 | STRUCTURE | |
| 21 | TOWER | |
| 22 | STRUCTURE | |
| 23 | STRUCTURE | |
| 24 | EARTH-MOUNDED CONTROL BUNKER | |
| a | STRUCTURE ON ROOF | |
| b | STRUCTURE ON ROOF | |
| c | STRUCTURE ON ROOF | |
| d | STRUCTURE ON ROOF | |
| 25 | TOWER | |
| 26 | TOWER, WITH POSS ANTENNA | |
| 27 | STRUCTURE | |
| 28 | 4 ANTENNA POSITIONS | |
| 29 | 2 PROB TELEMETRY ANTENNAS | |
| 30 | TOWER | |
| 31 | STRUCTURE | |
| 32 | MISSILE-READY BLDG | |
| 33 | SECURITY BLDG | |
| 34 | BLDG | |
| 35 | BLDG | |
| 36 | BLDG | |
| 37 | BLDG | |

*FIGURE 3. LAYOUT OF LAUNCH SITE D1, TYURATAM MISSILE TEST CENTER.*

FIGURE 4. LAUNCH SITE D2, TYURATAM MISSILE TEST CENTER.

| ITEM | DESCRIPTION | DIMENSIONS (FT) |
|---|---|---|
| 1 | 7 BURIED CONDUIT SECTIONS | |
| 2 | MISSILE-READY BUILDING | |
| a | PERSONNEL PASSAGEWAY | |
| 3 | BUILDING | |
| 4 | BUILDING | |
| 5 | EARTH-MOUNDED STRUCTURE | |
| 6 | EARTH-MOUNDED PROBABLE TANK | |
| 7 | POSSIBLE SPRAY POND | |
| 8 | STRUCTURE | |
| 9 | BUILDING | |
| 10 | BUILDING | |
| 11 | BUILDING | |
| 12 | EARTH-MOUNDED STRUCTURE | |
| 13 | BUILDING | |
| 14 | BARRACKS/ADMINISTRATION BUILDING | |
| 15 | BUILDING | |
| 16 | 2 PROBABLE EARTH-MOUNDED TANKS | |
| 17 | BUILDING | |
| 18 | EARTH-MOUNDED STRUCTURE | |
| 19 | EARTH-MOUNDED STRUCTURE | |
| 20 | STRUCTURE | |
| 21 | EARTH-MOUNDED CONTROL BUNKER | |
| a | STRUCTURE ON ROOF | |
| b | STRUCTURE ON ROOF | |
| c | STRUCTURE ON ROOF | |
| d | STRUCTURE ON ROOF | |
| e | STRUCTURE ON ROOF | |
| f | STRUCTURE ON ROOF | |
| 22 | DRIVE-IN EARTH-MOUNDED BUILDING | |
| 23 | LAUNCH SILO | |
| 24 | STRUCTURE | |
| 25 | STRUCTURE | |
| 26 | STRUCTURE | |
| 27 | STRUCTURE | |
| 28 | EARTH-MOUNDED BUILDING | |
| 29 | STRUCTURE | |
| 30 | EARTH-MOUNDED LAUNCH SILO | |
| 31 | LAUNCH SILO | |
| 32 | STRUCTURE | |
| 33 | STRUCTURE | |
| 34 | STRUCTURE | |
| 35 | STRUCTURE | |
| 36 | STRUCTURE | |
| 37 | STRUCTURE | |
| 38 | STRUCTURE | |
| 39 | STRUCTURE | |
| 40 | EARTH-MOUNDED STRUCTURE | |
| 41 | MISSILE-READY BUILDING | |
| a | PERSONNEL PASSAGEWAY | |
| 42 | DUAL-BASIN SUMP | |
| 43 | BUILDING | |

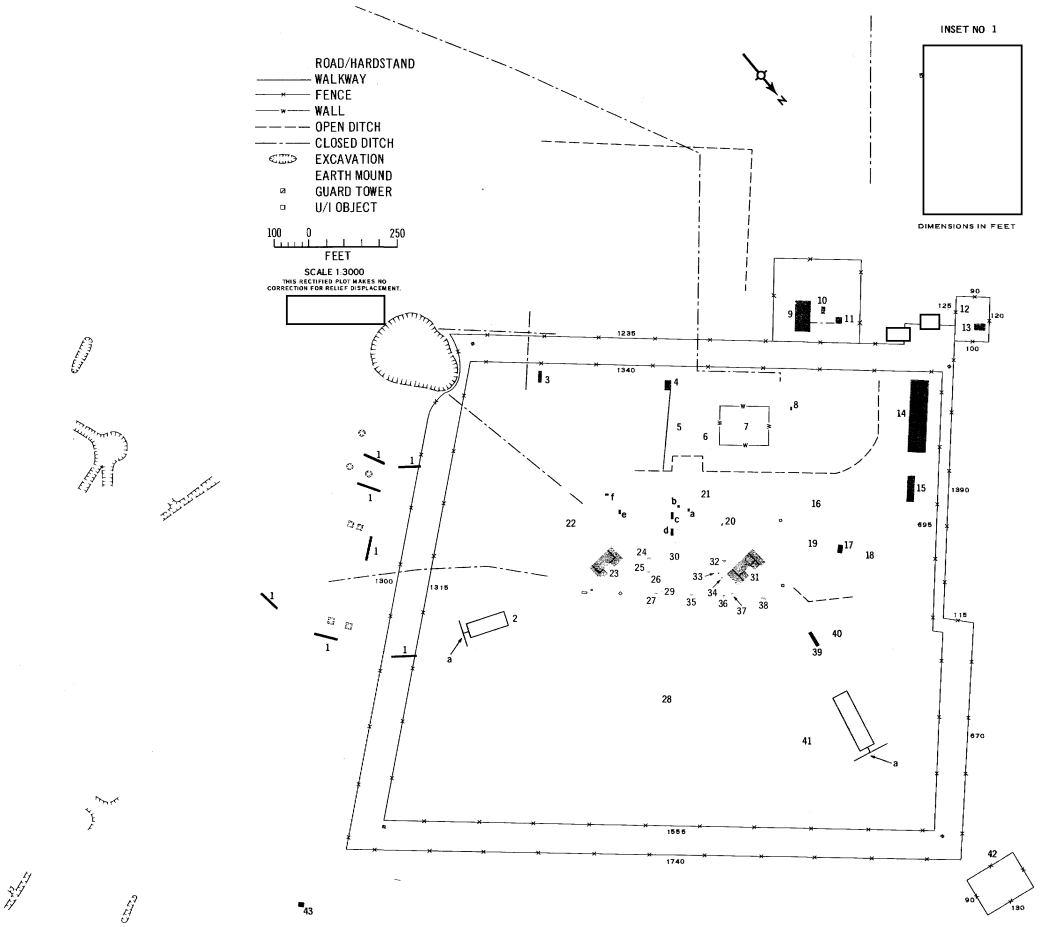
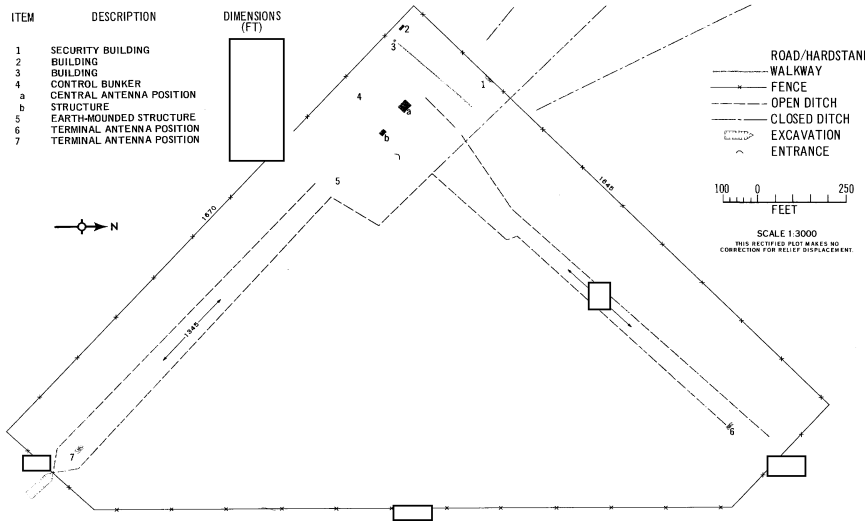



*FIGURE 5. LAYOUT OF LAUNCH SITE D2, TYURATAM MISSILE TEST CENTER.*



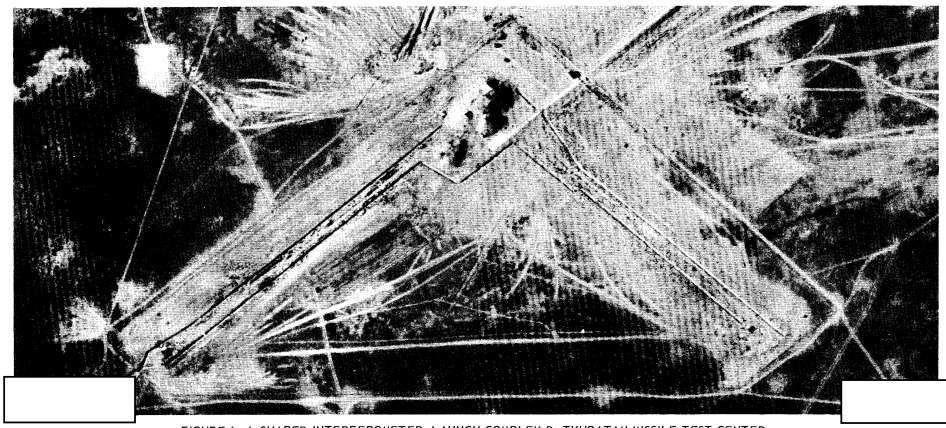
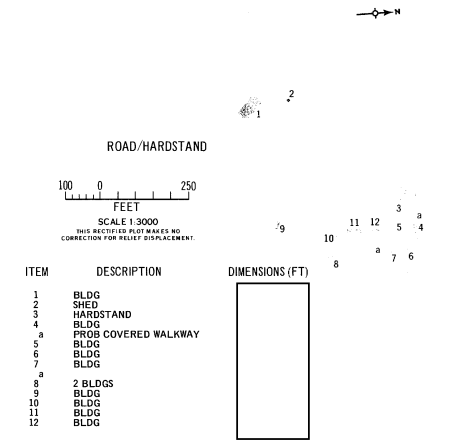



FIGURE 6. L-SHAPED INTERFEROMETER, LAUNCH COMPLEX D, TYURATAM MISSILE TEST CENTER.



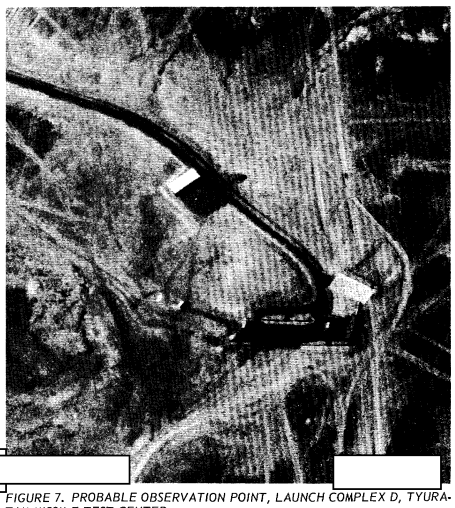



FIGURE 7. PROBABLE OBSERVATION POINT, LAUNCH COMPLEX D, TYURATAM MISSILE TEST CENTER.

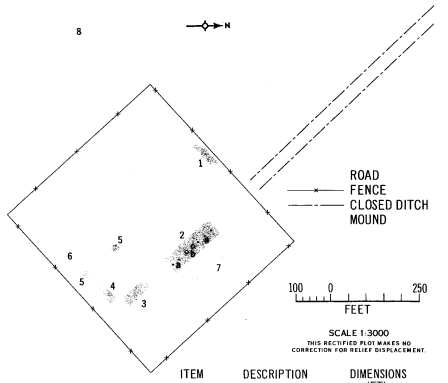



*FIGURE 8. INSTRUMENTATION SITE, LAUNCH COMPLEX D, TYURATAM MISSILE TEST CENTER.*

sliding on rails in the direction away from the loading apron. From photography of the deployed complexes, it is known that rectangular equipment bunkers were constructed between the launch silos in the original excavation. Passageways for the movement of personnel between the silos, the equipment bunkers, and the control bunker are constructed parallel to the long axis of the excavation along both sides of the line of silos. Good interpretable photography of Site D1 reveals a low permanent structure, of undetermined function, adjoining much of the forward edge and the sides of the silo door in the closed position. A row of lattice towers flanks each side of the line of silos, and a number of small unidentified structures are on the hardstand in the vicinity of the silos. Northwest of the silos, but within the loop road serving the site, are 2 earth-mounded tanks and an earth-mounded structure. West of the silos, and to the left rear of the control bunker, is a rectangular area surrounded by an earth-banked wall which has been called a possible spray pond, although it never has been observed to contain an appreciable amount of liquid. Two earth-mounded probable tanks are at the eastern corner of this area. A dual-basin sump is north-northwest of the silos, just outside the security fence, and an earth-mounded structure is adjacent to the loop road north of the silos. A line of 2 probable telemetry antennas and 4 antenna positions adjoins the loop road southwest of the control bunker. Just inside the entrance to the site, along the eastern fenceline is a missile-ready building.

## LAUNCH SITE D2

Launch Site D2 (Figures 4 and 5), approximately 0.8 nm east of Site D1, is a second Type IIIA launch site first seen in [redacted] Although Site D2 bears a strong external resemblance to Site D1, a number of items distinguish the 2 sites. Construction timing at this newer site differed considerably from that at the earlier site. Site D2 was considered complete in [redacted] almost 3 full years after it was first seen, but Site D1 was considered to be complete only 2 years after the initial observation. During the period in which Site D2 was under construction at Tyuratam, a pronounced break occurred in construction starts at the deployed complexes. Between [redacted] no construction starts were recorded in the Type IIIA deployment program, and several launch sites of both hard and soft configuration were abandoned in an early stage of construction. The reason for this disruption in the construction program never has been definitely established, but the possibility has been raised that it involved a changeover from SS-7 to SS-9 deployment. Upon completion of Site D2, the main difference between it and Site D1 was the inclusion of 2 arch-roofed missile-ready buildings within the launch site. Other variations included a drive-in earth-mounded structure constructed adjacent to the southeast end of the earth-mounded control bunker, and additional construction activity near the southern fenceline where long narrow structures were being emplaced in shallow excavations. In [redacted] it became apparent that the central silo had been entirely covered by a flat-topped earth mound. In [redacted] after a period of 4 months without photographic coverage of Launch Complex D, [redacted] revealed a large crater 800 feet south of the right silo. Several of the frame buildings near the site entrance apparently had sustained considerable damage from a high explosives detonation at the location of the crater. The arrangement of curved and linear revetments, and of the previously identified buried structures near the southern fenceline, in a pattern radial to the crater strongly suggest that the explosion was deliberately set off, perhaps to determine the effect upon nearby facilities, including the launch site. Other than the 2 earth-mounded onsite missile-ready buildings and the earth mound over the central silo, the external appearance of Site D2 differs only slightly from Site D1. The variation in construction times, however, indicates that there are other differences between the sites which are not obvious and never have been fully understood.

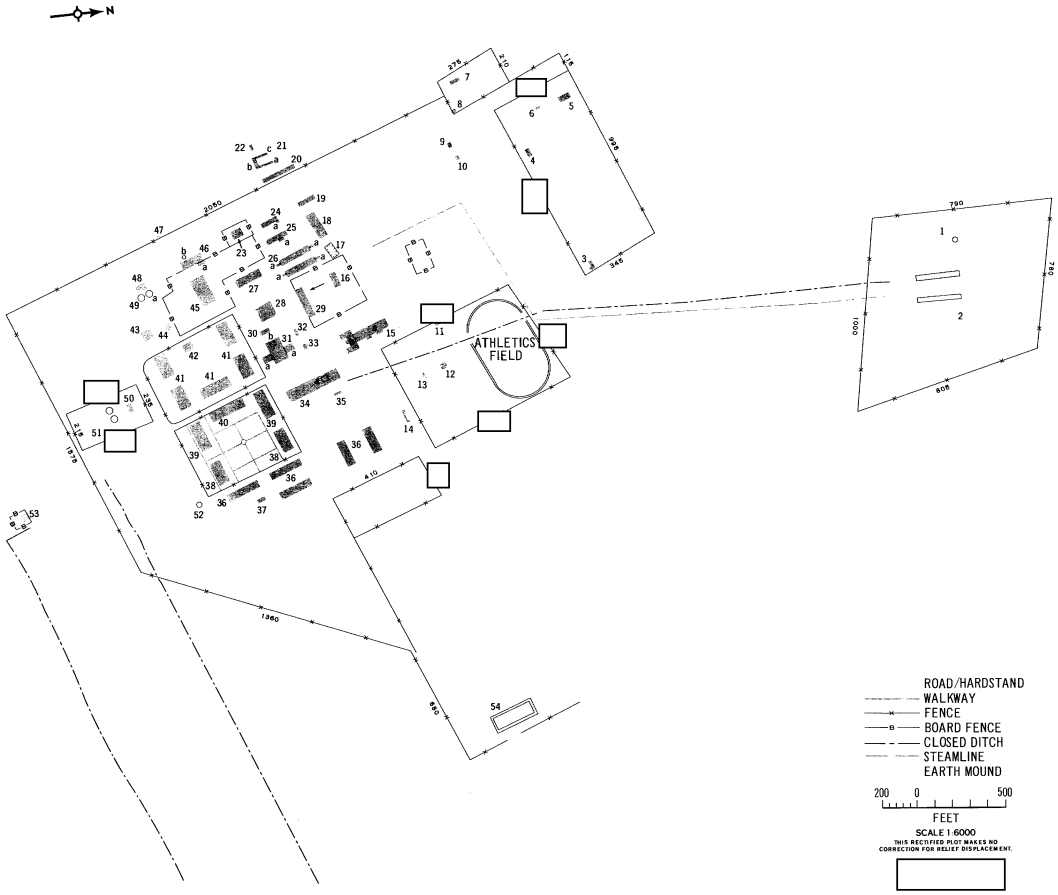
## INTERFEROMETER/RANGE-RATE DEVICE

An L-shaped interferometer* (Figure 6) was added approximately 0.7 nm south of Launch Site D2 during late 1963 and early 1964. This facility consists of a central

*The term "interferometer" is used to cover both true interferometers and range-rate measuring devices, as the 2 kinds of facilities cannot be distinguished on available photography.

25X1 [redacted] 25X1 25X1

FIGURE 9. COMPLEX SUPPORT FACILITY, LAUNCH COMPLEX D, TYURATAM MISSILE TEST CENTER.




| ITEM | DESCRIPTION | DIMENSION (FT) |
|---|---|---|
| 1 | EARTH-BANKED TANK | |
| 2 | 2 EARTH-MOUNDED, ARCH-ROOFED BLDGS | |
| 3 | SHED | |
| 4 | BLDG | |
| 5 | BLDG | |
| 6 | BLDG | |
| 7 | BLDG | |
| 8 | BLDG | |
| 9 | BLDG | |
| 10 | STRUCTURE | |
| 11 | BLDG | |
| 12 | STAGE/SCREEN | |
| 13 | PROJECTION BLDG | |
| 14 | STRUCTURE | |
| 15 | BLDG | |
| a | | |
| b | | |
| 16 | MAINTENANCE SHED | |
| 17 | EXCAVATION | |
| 18 | BLDG | |
| 19 | BLDG | |
| 20 | BLDG | |
| 21 | SHED | |
| a | | |
| b | | |
| c | | |
| 22 | SHED | |
| 23 | BLDG | |
| 24 | BLDG | |
| a | | |
| 25 | BLDG | |
| a | | |
| 26 | 2 SEMIBURIED STRUCTURES | |
| a | 4 ENTRANCES | |
| 27 | ADMINISTRATION BLDG | |
| 28 | BLDG | |
| 29 | VEHICLE SHED | |
| 30 | BLDG | |
| 31 | BLDG | |
| a | 2 WINGS | |
| b | | |
| 32 | BLDG | |
| 33 | BLDG | |
| 34 | BLDG | |
| a | | |
| 35 | BLDG | |
| 36 | 5 BKS | |
| 37 | BLDG | |
| 38 | 2 BKS | |
| 39 | 2 TWO-STORY APARTMENT BLDGS | |
| 40 | 3-STORY APARTMENT BLDG | |
| 41 | 5 TWO-STORY APARTMENT BLDGS | |
| 42 | BLDG | |
| 43 | POSS FIRE STATION | |
| 44 | BLDG | |
| 45 | POSS VEHICLE MAINTENANCE BLDG | |
| 46 | HEAT PLANT | |
| a | | |
| b | STACK | |
| 47 | SHED | |
| 48 | PROBABLE PUMPHOUSE | |
| 49 | BURIED FUEL TANK | |
| a | POSS BURIED FUEL TANK | |
| 50 | PUMPHOUSE | |
| 51 | 2 EARTH-MOUNDED WATER TANKS | |
| 52 | PROB TANK | |
| 53 | SWITCHING BLDG | |
| 54 | SWIMMING POOL | |

*FIGURE 10. LAYOUT OF COMPLEX SUPPORT FACILITY, LAUNCH COMPLEX D, TYURATAM MISSILE TEST CENTER.*

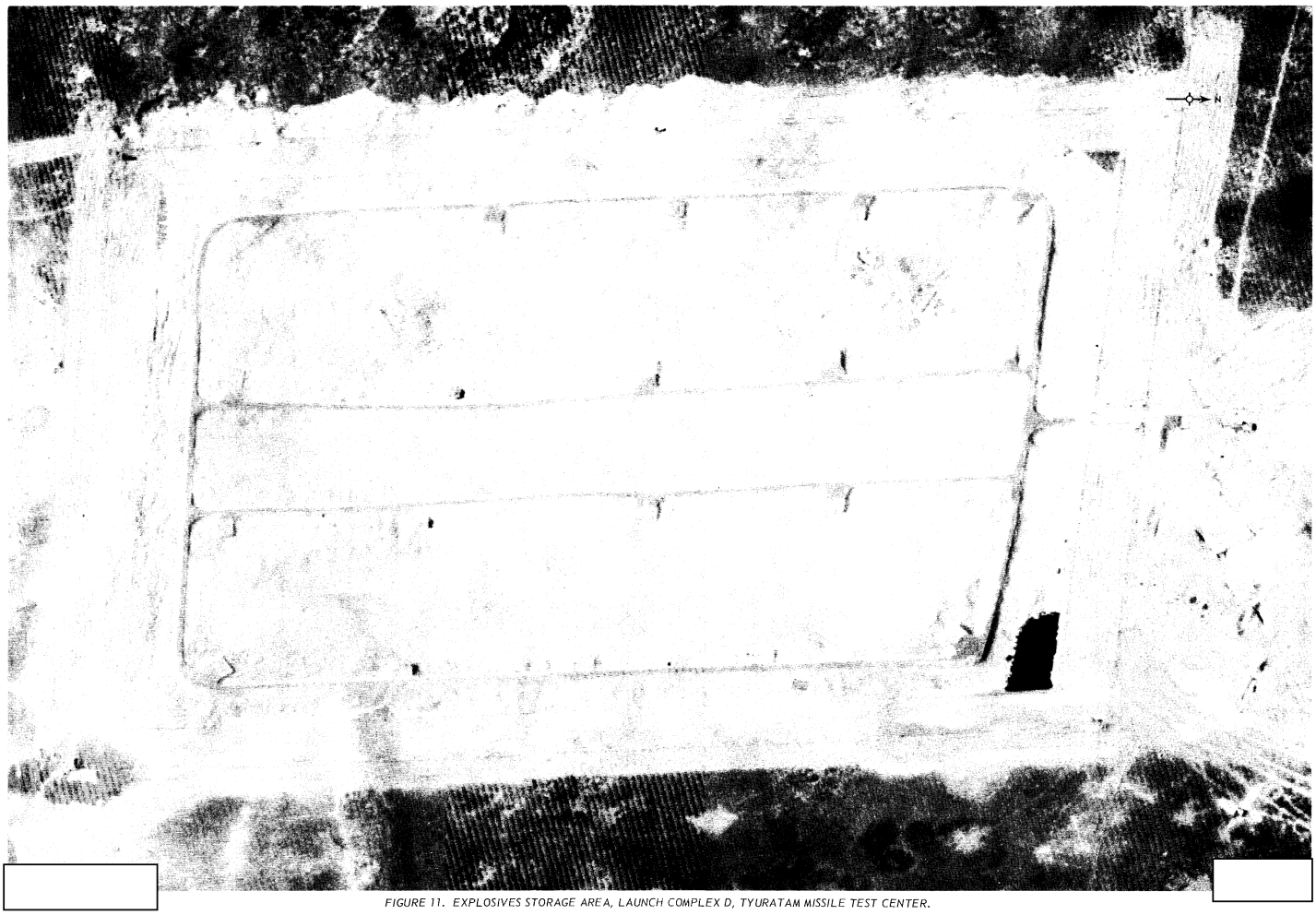





*FIGURE 11. EXPLOSIVES STORAGE AREA, LAUNCH COMPLEX D, TYURATAM MISSILE TEST CENTER.*

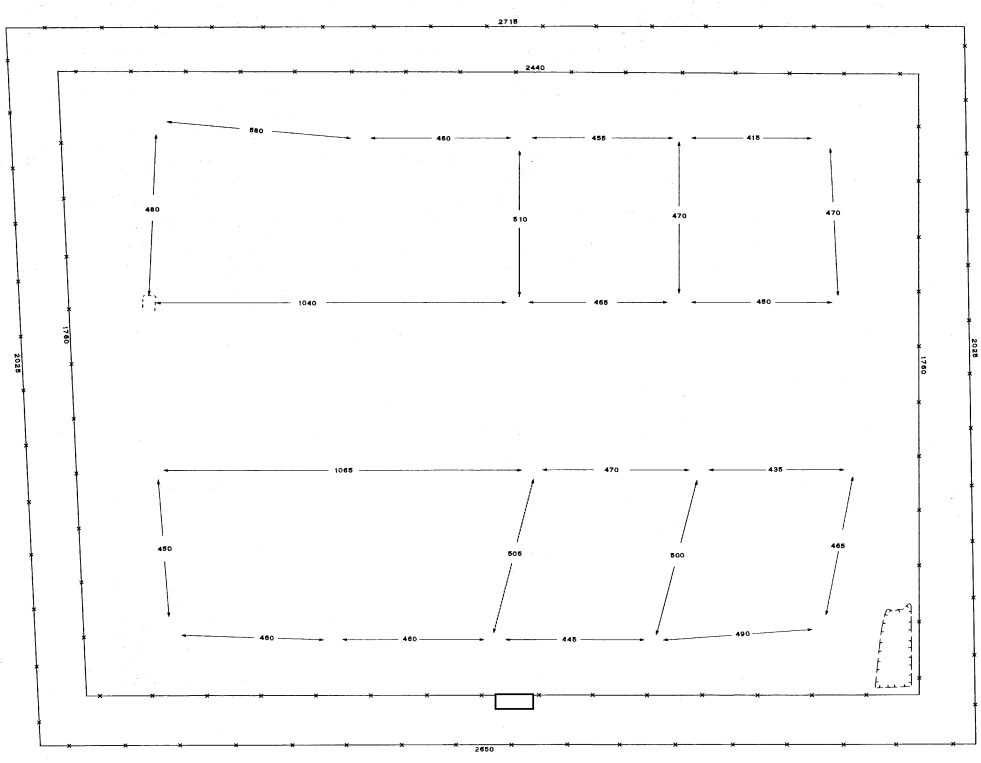



*FIGURE 12. LAYOUT OF EXPLOSIVES STORAGE AREA, LAUNCH COMPLEX D, TYURATAM MISSILE TEST CENTER.*

antenna position at, and an earth-mounded control building near, the apex of the L, and a buried terminal antenna position at each extremity of the L. A second earth-mounded structure is adjacent to the earth-mounded control building. Drainage ditches parallel both sides of each leg of the device, indicating a need to channel water away from the legs. A security building is at the entrance to the facility, and 2 other small buildings are near the fence corner just to the west. In [redacted], an open ditch connected the interferometer with Launch Site D2, indicating a direct link between the 2 facilities, but interferometers never have been identifed at deployed Type IIIA sites, including those built following the construction hiatus of mid 1962 and early 1963.

## ANCILLARY FACILITIES

Two small ancillary facilities are associated with the launch sites. One is a probable observation point (Figure 7) situated atop a knoll 0.5 nm west of Launch Site D1. Just to the south of this probable observation point, and just south of the complex main road, is an instrumentation site. This fence-secured facility (Figure 8) contains a large instrumentation building with 2 unidentified antennas and 5 other antenna positions on its roof. Forward of the building are 4 telemetry/tracking antennas, and just south of the building is a group of 5 smaller buildings.

## COMPLEX SUPPORT FACILITY

Administrative and logistical support for Launch Complex D is centralized at the complex support facility 2.4 nm west-southwest of Launch Site D1. This facility (Figures 9 and 10) appears to contain all the housing, administrative, recreational, and vehicular maintenance facilities necessary to support the personnel assigned to the complex. At the north edge of the complex support facility, is a separately fenced compound containing 2 earth-mounded, concrete, arch-roofed buildings and a circular, earth-banked tank or basin which often is filled with liquid. First evidence of the buildings was visible in [redacted] and they appeared to be complete 14 months later in [redacted] The function of this pair of buildings never has been established.

## EXPLOSIVES STORAGE AREA

One other facility associated with Launch Complex D is an explosives storage area (Figures 11 and 12) 3.3 nm west-southwest of the complex support facility. Constructed during the summer of 1965, it was used only once for the storage of the high explosives used in the blast which created the crater at Launch Site D2 sometime between [redacted]

REFERENCES

[redacted]

MAPS OR CHARTS

AMS. DESPA, Series 2, Sheet NL 41A/4, 1st ed., 1964, scale 1:50,000 (TOP SECRET [redacted]

REQUIREMENT

CIA. C-DI5-82,776 (Revised)

NPIC PROJECT

11055AF/66